S/N 10/040,100

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims

5   in the application.

Please amend claims 1 – 11, 19, 21, 39 – 43, and 46 – 49, withdraw claims

23 – 38, and add new claims 54 – 67, as follows:

1 (Currently Amended).   An apparatus for adaptive multimedia transmission and

10   reception, the apparatus comprising:

a network interface;

a plurality of heterogeneous computational elements, ~~the plurality of~~

~~heterogeneous computational elements including a first computational element and a~~

~~second computational element, the~~ a first computational element of the plurality of

15   heterogeneous computational elements having a first fixed architecture and a ~~the~~ second

computational element of the plurality of heterogeneous computational elements having a

second, different fixed architecture; and ~~architecture, the first fixed architecture being~~

~~different than the second fixed architecture; and~~

an interconnection network coupled to the network interface and to the

20   plurality of heterogeneous computational elements, the interconnection network adapted,

in response to first configuration information, to configure a first plurality of input and

output data connections among ~~operative to configure~~ the plurality of heterogeneous

computational elements for a first media functional mode of a plurality of media

functional modes, ~~in response to first configuration information,~~ and the interconnection

25   network further adapted, in response to second configuration information, to configure a

second plurality of input and output data connections among ~~operative to reconfigure~~ the

plurality of heterogeneous computational elements for a second, different media

functional mode of the plurality of media functional modes, the plurality of media

functional modes comprising an acquisition mode and a traffic mode. ~~in response to~~

30   ~~second configuration information, the first media functional mode being different than the~~

~~second media functional mode.~~

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2 (Currently Amended).   The apparatus of claim 1, wherein the plurality of media functional modes further comprises ~~include an acquisition mode, a traffic mode, and~~ an idle mode.

5   3 (Currently Amended).   The apparatus of claim 1, ~~claim 2,~~ wherein the acquisition mode includes a channel acquisition mode and a control processing mode.

4 (Currently Amended).   The apparatus of claim 1, ~~claim 2,~~ wherein the traffic mode includes a voice reception mode, a voice transmission mode, and a control processing
10   mode.

5 (Currently Amended).   The apparatus of claim 1, ~~claim 2,~~ wherein the traffic mode includes a data reception mode, a data transmission mode, a data processing mode, and a control processing mode.
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6 (Currently Amended).   The apparatus of claim 1, ~~claim 2,~~ wherein the traffic mode includes a media reception mode, a media transmission mode, a media processing mode, and a control processing mode.

20   7 (Currently Amended).   The apparatus of claim 4, ~~claim 2,~~ wherein the control processing mode includes processing of a plurality of GSM control channels, the plurality of GSM control channels including a broadcast control channel (BCCH), a frequency-correction channel, a synchronization channel (SCH), a plurality of common control channels (CCCH), a slow associated control channels (SACCH), and a fast associated
25   control channel (FACCH).

8 (Currently Amended).   The apparatus of claim 1, wherein the interconnection network is further adapted to configure a third plurality of input and output data connections among ~~operative to configure~~ the plurality of heterogeneous computational
30   elements for media reception on a plurality of frequencies.

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9 (Currently Amended).   The apparatus of claim 1, wherein the interconnection network is further adapted to configure a third plurality of input and output data connections among operative to configure the plurality of heterogeneous computational elements for media reception in a plurality of time division multiple access (TDMA) time

5   slots.

10 (Currently Amended).   The apparatus of claim 1, wherein the interconnection network is further adapted to configure a third plurality of input and output data connections among operative to configure the plurality of heterogeneous computational

10   elements for media transmission on a plurality of frequencies.

11 (Currently Amended).   The apparatus of claim 1, wherein the interconnection network is further adapted to configure a third plurality of input and output data connections among operative to configure the plurality of heterogeneous computational

15   elements for media transmission in a plurality of time division multiple access (TDMA) time slots.

12 (Original).   The apparatus of claim 1, further comprising:

    a timing unit coupled to the network interface, to plurality of

20   heterogeneous computational elements and to the interconnection network, the timing unit operative to provide synchronization and over sampling.

13 (Original).   The apparatus of claim 12, wherein the timing unit is comprised of a plurality of heterogeneous computational elements and interconnection network.

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14 (Original).   The apparatus of claim 1, further comprising:

    a memory coupled to the plurality of heterogeneous computational elements and to the interconnection network, the memory operative to store the first configuration information and the second configuration information.

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15 (Original). The apparatus of claim 1, wherein the first configuration information and the second configuration information are stored in a second plurality of heterogeneous computational elements configured for a memory functional mode.

5   16 (Original). The apparatus of claim 1, wherein the first configuration information and the second configuration information are stored as a configuration of the plurality of heterogeneous computational elements.

17 (Original). The apparatus of claim 1, wherein the first fixed architecture and the
10   second fixed architecture are selected from a plurality of specific architectures, the plurality of specific architectures including functions for memory, addition, multiplication, complex multiplication, subtraction, synchronization, queuing, over sampling, under sampling, adaptation, configuration, reconfiguration, control, input, output, and field programmability.

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18 (Original). The apparatus of claim 1, further comprising:
        a controller coupled to the plurality of heterogeneous computational elements and to the interconnection network, the controller operative to direct and schedule the configuration of the plurality of heterogeneous computational elements for
20   the first functional mode and the reconfiguration of the plurality of heterogeneous computational elements for the second functional mode.

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19 (Currently Amended).   The apparatus of claim 1, further comprising:

    a second plurality of heterogeneous computational elements coupled to the interconnection network, the second plurality of heterogeneous computational elements having a third plurality of input and output data connections configured by the

5   interconnection network for a controller operating mode, the configured second plurality of heterogeneous computational elements operative to direct and schedule the configuration of the plurality of heterogeneous computational elements by the interconnection network for the first media functional mode and the reconfiguration of the plurality of heterogeneous computational elements for the second media functional

10   mode.

20 (Original). The apparatus of claim 1, wherein apparatus is embodied within a mobile station having a plurality of operating modes.

15   21 (Currently Amended).   The apparatus of claim 20, claim 18, wherein the plurality of operating modes of the mobile station includes mobile telecommunication, personal digital assistance, multimedia reception, mobile packet-based communication, and paging.

20   22 (Original). The apparatus of claim 1, wherein a first portion of the plurality of heterogeneous computational elements are operating in the first media functional mode while a second portion of the plurality of heterogeneous computational elements are being configured for the second media functional mode.

25   23 – 38 (Withdrawn).

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39 (Currently Amended).   An adaptive integrated circuit, comprising:

        a memory adapted to store configuration information;

        a plurality of fixed and differing computational elements; and

        an interconnection network coupled to the memory and to the plurality of

5   fixed and differing computational elements, the interconnection network adapted, in

response to configuration information, to configure a plurality of data input, data output

and control communication paths among ~~operative in response to the configuration~~

~~information to configure and reconfigure~~ the plurality of fixed and differing

computational elements for a plurality of media functional modes, the plurality of media

10   functional modes comprising an acquisition mode and a traffic mode. ~~modes.~~

40 (Currently Amended).   The adaptive integrated circuit of claim 39, wherein the

plurality of media functional modes further comprises ~~include an acquisition mode, a~~

~~traffic mode, and~~ an idle mode.

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41 (Currently Amended).   The adaptive integrated circuit of claim 39, ~~claim 40,~~

wherein the acquisition mode includes a channel acquisition mode and a control

processing mode.

20   42 (Currently Amended).   The adaptive integrated circuit of claim 39, ~~claim 40,~~

wherein the traffic mode includes a voice reception mode, a voice transmission mode,

and a control processing mode.

43 (Currently Amended).   The adaptive integrated circuit of claim 39, claim 40,

25   wherein the traffic mode includes a data reception mode, a data transmission mode, a data

processing mode, and a control processing mode.

44 (Original). The adaptive integrated circuit of claim 43, wherein the traffic mode

includes a media reception mode, a media transmission mode, a media processing mode,

30   and a control processing mode.

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45 (Original). The adaptive integrated circuit of claim 43, wherein the control processing mode includes processing of a plurality of GSM control channels, the plurality of GSM control channels including a broadcast control channel (BCCH), a frequency-correction channel, a synchronization channel (SCH), a plurality of common control channels

5   (CCCH), a slow associated control channels (SACCH), and a fast associated control channel (FACCH).

46 (Currently Amended).   The adaptive integrated circuit of claim 39, wherein the interconnection network is further adapted to configure the plurality of data input, data

10   output and control communication paths among operative to configure the plurality of fixed and differing computational elements for media reception on a plurality of frequencies.

47 (Currently Amended).   The adaptive integrated circuit of claim 39, wherein the

15   interconnection network is further adapted to configure the plurality of data input, data output and control communication paths among operative to configure the plurality of fixed and differing computational elements for media reception in a plurality of time division multiple access (TDMA) time slots.

20   48 (Currently Amended).   The adaptive integrated circuit of claim 39, wherein the interconnection network is further adapted to configure the plurality of data input, data output and control communication paths among operative to configure the plurality of fixed and differing computational elements for media transmission on a plurality of frequencies.

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49 (Currently Amended).   The adaptive integrated circuit of claim 39, wherein the interconnection network is further adapted to configure the plurality of data input, data output and control communication paths among ~~operative to configure~~ the plurality of fixed and differing computational elements for media transmission in a plurality of time

5   division multiple access (TDMA) time slots.

50 (Original). The adaptive integrated circuit of claim 39, wherein adaptive integrated circuit is embodied within a mobile station having a plurality of operating modes.

10   51 (Original). The adaptive integrated circuit of claim 50, wherein the plurality of operating modes of the mobile station includes mobile telecommunication, personal digital assistance, multimedia reception, mobile packet-based communication, and paging.

15   52 (Original). The adaptive integrated circuit of claim 39, wherein a first portion of the plurality of fixed and differing computational elements are operating in the first media functional mode while a second portion of the plurality of fixed and differing computational elements are being configured for the second media functional mode.

20   53 (Original). The adaptive integrated circuit of claim 39, wherein the plurality of fixed and differing computational elements are selected from a plurality of specific architectures, the plurality of specific architectures including functions for memory, addition, multiplication, complex multiplication, subtraction, synchronization, queuing, over sampling, under sampling, adaptation, configuration, reconfiguration, control, input,

25   output, and field programmability.

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54 (New).   The apparatus of claim 1, wherein the interconnection network is further adapted to configure the first and second pluralities of input and output data connections among the plurality of heterogeneous computational elements by providing circuit-switched connections for input and output data transfer.

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55 (New).   The apparatus of claim 1, wherein the interconnection network is further adapted to configure the first and second pluralities of input and output data connections among the plurality of heterogeneous computational elements by providing routing of data packets for input and output data transfer.

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56 (New).   The apparatus of claim 55, wherein the data packets further comprise routing information for self-routing of the data packets.

57 (New).   The apparatus of claim 1, wherein the interconnection network further

15   comprises a plurality of levels of interconnection, a first level of interconnection of the plurality of levels of interconnection adapted to route a plurality of data packets as the configuration of the first and second pluralities of input and output data connections.

58 (New).   The apparatus of claim 57, wherein a second level of interconnection of

20   the plurality of levels of interconnection is adapted to provide circuit-switched connections for input and output data transfer as the configuration of the first and second pluralities of input and output data connections.

59 (New).   The apparatus of claim 1, wherein the network interface is a wireless

25   communication network interface.

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60 (New).   A mobile communication apparatus for wireless communication within a
wireless network, comprising:

        a network interface for wireless communication with a base station
transceiver;

5   a memory adapted to store configuration information;

        a plurality of fixed and differing computational elements; and

        an interconnection network coupled to the network interface, to the
memory and to the plurality of fixed and differing computational elements, the
interconnection network adapted, in response to configuration information, to configure a
10 plurality of data input, data output and control communication paths among the plurality
of fixed and differing computational elements for a plurality of media functional modes.

61 (New).   The apparatus of claim 60, wherein the plurality of media functional
modes comprises an acquisition mode and a traffic mode.
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62 (New).   The apparatus of claim 61, wherein the acquisition mode comprises a
channel acquisition mode and a control processing mode.

63 (New).   The apparatus of claim 61, wherein the traffic mode comprises a voice
20 reception mode, a voice transmission mode, and a control processing mode.

64 (New).   The apparatus of claim 61, wherein the traffic mode comprises a data
reception mode, a data transmission mode, a data processing mode, and a control
processing mode.
25

65 (New).   The apparatus of claim 64, wherein the control processing mode comprises
processing of a plurality of GSM control channels, the plurality of GSM control channels
comprising a broadcast control channel (BCCH), a frequency-correction channel, a
synchronization channel (SCH), a plurality of common control channels (CCCH), a slow
30 associated control channels (SACCH), and a fast associated control channel (FACCH).

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66 (New).   The apparatus of claim 60, wherein the interconnection network is further
adapted to configure the plurality of data input, data output and control communication
paths among the plurality of heterogeneous computational elements by providing circuit-
switched connections for corresponding transfer of data input, data output and control

5   information.

67 (New).   The apparatus of claim 60, wherein the interconnection network is further
adapted to configure the plurality of data input, data output and control communication
paths among the plurality of heterogeneous computational elements by providing routing

10   of data packets for corresponding transfer of data input, data output and control
information.

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